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necessary, can be no substitute for judgment. Promoters must have vision, breadth, scholarship, spirituality, and tact. They must be committed to the scientific method of procedure and believe in the ultimate victory of truth in the open court of discussion. They must have sufficient breadth and charity to strive conscientiously and continuously to give each communion an equal chance to present to its young people those things which have been so vital during its history. They cannot assume or give the impression that they believe they have a monopoly on truth, but rather that they earnestly desire to profit by the broader contribution others have to make. If these conditions are met and this spirit is attained, the confidence of students, parents, university authorities, national Boards of financiers will follow.

Too much care cannot be exercised, on the part of all concerned, to see that these matters have had due and full consideration. With these safeguards the growth of the schools is only a question of time. There is no occasion for alarm but rather for joy in this modern extension of the old plan of building the little red schoolhouse by the Church. The University by the cathedral does not suffice. Religion was taught in the old red schoolhouse as it is not taught in the State University. The school of religion must supplement the university, to do for higher education what the red schoolhouse did for elementary education. Only when the cathedral can take as her handmaidens the State University and the co-operative school of religion, may we hope for her to render her richest service to the world. The university center may then be not only the intellectual, but also the religious, capital of the state.

TECHNICAL EDUCATION AND THE CHRISTIAN PROGRAM

JOHN H. MACCRACKEN

To one who has given no thought to the matter it comes rather as a shock when he examines the list of institutions connected with the church, to find how largely their work is confined to work in the liberal arts and in the pure sciences. We wonder

if there is any fundamental reason for this or whether it has just happened so. Is it because technical education is comparatively new and the church has not yet gotten around to the point of taking it up, or is there some more fundamental reason ?

Even Princeton has only recently decided to offer courses in all branches of engineering, while Oberlin, one of the most progressive of church colleges, has only recently taken up the formulating of a plan for an engineering school. On the other hand, in Pasadena, California, of two institutions of about equal age, the college of liberal arts—Occidental College—is the child of the church, while the engineering school—California Institute of Technology—has no church relation.

Is the relation of the church to technical education to be explained by reference to the general principle enunciated by Christ, " My kingdom is not of this world ; if my kingdom were of this world, then would my servants fight " ? Is it because technical education and engineering education have to do primarily with material things and not with the spirits of men, that the church has felt they lay outside its sphere ? Can we draw here any sharp line of distinction between the things that are Caesar's and the things that are God's ?

There is no question, of course, that the conflict which arose with the development of modern science between the traditional views of Christianity and the conclusions of modern scientists tended to throw the promotion and promulgation of scientific truth into the hands of men outside the churches, or at least into the hands of men not particularly interested in the church as an ecclesiastical organization. Constitutional provisions prevented the states from entering the field of religious education and it was natural, therefore, for the states to take as their particular task the part of education which the church did not attempt. This explains in some measure why municipal colleges and state universities have given so much importance to technical education and proportionately so little to the liberal arts, and explains, also, in some measure, why the large federal grants have all been made in the aid of mechanical, agricultural and other vocational forms of education.

The other-worldliness of religion, the minimizing of the im-

portance of this life and of the things that perish in the using, as compared with the things which are unseen and eternal, explain also, in some measure, why the churches have been less concerned to prepare men to build and to manufacture.

At Lafayette it has happened that for fifty years engineering has held an equal place with liberal arts. This was largely due, however, to the munificent gifts of one man and to the broad interests and far-sighted vision of his trusted friend, President Cattell. There has, however, been but one faculty at the college; engineering students have been required to take the same amount of instruction in Bible and to attend chapel as regularly as the arts students; the two groups of men have lived in the same dormitories and fraternity houses, received instruction in English, modern languages, mathematics, economics, and the pure sciences, from the same instructors, and at the present time the professors of engineering are quite as much, if not more, interested in religion than the professors of liberal arts.

An object lesson such as Lafayette proves, I think, that there is inherently no reason why technical education should not flourish in an institution maintained and controlled by the church.

In establishing the Medical School at Pekin serious consideration was given to the question as to what the relation of the new Medical School should be to the missionaries and it was finally decided to make the Medical School a constituent part of a university under missionary control. An honest effort has been made to secure as members of the medical faculty only Christian men in sympathy with Christian missions. Nevertheless, I understand that the two groups find it difficult to work together and the ultimate success of the plan will depend upon the tolerance and Christian catholicity of the individuals involved.

At the Des Moines Conference college students were interested in what Sam Higginbotham had to tell them about the teaching of agriculture in India. They were interested, perhaps, because of its concreteness and definiteness. But Sam Higginbotham, as I understand it, found it expedient to project his work as an independent mission rather than to work under the direction of any church board.

I don't suppose that in this generation any one would seriously contend that the church would be going outside its sphere if it were to undertake to make its own contribution to technical education. Those who once would have argued that because Jesus did not teach fishing, but only fishing for men, that his church should, therefore, not undertake technical education, would now probably recall that Jesus, himself was a technician, studied the trade of a carpenter, and used that trade to maintain and prepare himself materially for his spiritual mission; that in an age of machinery, therefore, the church might properly concern itself with technical education, provided its more immediate and more important work was not curtailed or sacrificed thereby.

We believe that religion is profitable for all things, both for the world that now is and for the world that is to come, and that to some men, as to the ear of Kipling's Scotch engineer, machines can be made to sing praises to God as well as human voices. To regard the machine as outside the sphere of the Christian church would be considered as unreasonable as were the Scotch who felt "a chest of whistles" an unwarranted intrusion between man and his Maker in worship. I think we may take it for granted that there is nothing in the nature of things which would make it inappropriate to give technical education a place on the Christian program. There are, however, other practical considerations which enter into the problem. The Presbyterian church has tried, in our largest cities, to follow in the steps of the Master, who went about healing, by establishing Presbyterian hospitals. These hospitals, however, have never received very generous support from the church at large. In New York the Presbyterian Hospital has recently entered into alliance with Columbia University and become a laboratory for its Medical School, showing how very slight was the connection between the hospital and the denomination, and how shallow the roots of the hospital in the church. We can hardly hope that technical education would strike any deeper roots into the interests and sympathies of the church as a church than hospitals have done.

Technical education is the most expensive form of educa-

tion, unless it be medical education. If any one will compare the item of apparatus and equipment at Lafayette with the item of apparatus and equipment at other Presbyterian colleges, they will have, perhaps, a sufficient explanation of why so few Christian colleges have undertaken technical education. And Lafayette is by no means as well equipped as she should be. Competent professors of engineering, in the same way, command higher salaries than teachers of equal grade in the liberal arts, and at the same time demand that the sections which they teach shall be smaller. The very large sums which have been poured into the Massachusetts Institute of Technology of recent years, into such institutions as Carnegie Institute, Rice Institute and the California Institute of Technology, and into the engineering schools of our great state universities, give some indication of how costly this form of education must necessarily be.

While, therefore, there is no reason why a church should not enter the field of technical education it should only do so if large sums are at command.

If I am asked whether I think that the present trend toward technical education means that technical education is to become the more important form of education for the church as well as for the state, my answer would be a decided negative. While I see no reason why technical education should not be granted a place in the Christian program, and while I think there would be every reason to rejoice in the establishment of a great technical school at Coe College or at Millikin University, under the auspices of the church, I feel, nevertheless, that the place of technical education in a Christian program must always be second to liberal education. This is not because I do not believe that a man may derive both culture and discipline from the engineering course. I think that is abundantly proved by the product of West Point. But it remains true that technical education does deal primarily with material things, with the physical rather than the spiritual needs of man. What man is, what man is here for, what ought to be, will never be discovered from the studies of the engineering curriculum; the normative sciences belong particularly to the arts.

Our Professor of Economics at Lafayette believes that

eventually the philosophy of life and the philosophy of education will be expressed in economic terms. I can conceive of an enthusiastic engineer who would contend that all of the problems of life might be expressed in engineering terms, just as some of my engineering friends, in the late war, insisted that the war in all its aspects was merely a problem in engineering.

The present disposition to stretch the term engineering to cover such new fields as commercial engineering, human engineering, industrial engineering, etc., etc., suggests that in the future the task of the clergyman may be known as religious engineering. But this loose use of the term robs it of its true significance and makes it synonymous with the adaptation of means to ends. No amount of engineering would ever have determined the question of whether it was the duty of the United States to enter the war or not. No amount of engineering, no matter how accurate the mathematics, can solve the problem as to whether the thing for which young men died in the war justified the supreme sacrifice of death.

Technical education will enable a man to do a thing agreed upon, to select the best means for a given end and may even develop the power of creation which makes it possible to dream a Panama Canal, or to picture a Woolworth sky-scraper. Engineering education will enable a man to express an opinion on the relative cost of things in material terms; it goes outside its function, however, when it attempts to determine moral values, to test religious sanctions in its torsion machines or to pronounce on the mortality or immortality of man. Mere engineering could never have won the battle of the Marne, and the engineering mind could never win the battles of the church. Given material the engineering mind will build your building, but the making of brick without straw, the going forth with Abram, not knowing whither you go, the enduring as seeing the invisible, the seeing the divine in a carpenter's son, are not within the range of their theodolites.

It is for this reason, primarily, and not because of its modernity, or cost, nor merely because the liberal arts curriculum is the accepted preparation for the theologian, that the church has manifested, relatively (and quite properly so), much greater

interest in liberal arts education than in technical education. If the Roman, however, could say with truth, I count nothing human foreign to me, it would be well for the church also, even in this age of specialization, to have its points of contact with all forms of education, because all forms of education and all sincere intellectual life will have important influence on religious education and religious life.

The author of "The Glass of Fashion" traces the moral deterioration of the present age, not only to the influence of the war, but also to the influence of a misunderstood Darwinism; to a philosophy which leaves no place in the ultimate outcome of things for the fruits of moral endeavor on the part of the individual, and which breeds, therefore, moral cynicism or passive acquiescence as the world-order Juggernaut rolls by.

Whether this be true or not I think we will all agree that it is true that religion, if it is to be understood, must use the vocabulary and talk the language of its age; and if the vocabulary and language of the coming generation is to be the vocabulary of economics, and of engineering, rather than of Homer and Virgil, there must be at least enough technical education in our church system to enable the church to make itself understood among the children of men. If any one has any doubts as to how rapidly the vocabulary changes in which we teach the same thoughts, let him attempt to use for the instruction and amusement of his own children the books which he read and enjoyed as a child.

I trust the church colleges represented here today will not feel that they must, with one accord, desert the sling of the liberal arts David for the somewhat cumbersome armor of the technical Goliath, but on the other hand I would encourage any Christian college which sees an opportunity to develop in a modest way a department of civil engineering (which is the least expensive of the engineering branches) to permit the instruction in surveying which they have already been giving for years (as it was given twenty years ago, and is, so far as I know, still given by Professor Scott for fifty-five years' active in the teaching of mathematics at Westminster College) to develop

into a full fledged two or four-year course in civil engineering, if the means are at hand.

I would call your attention, however, to the fact that engineering experts are at this time insisting that the engineering curriculum, instead of becoming more technical, should include some of the subjects of the liberal arts curriculum, such as English, history, economics, etc., and that some of the leading universities are insisting that engineering should be preceded by at least three years of liberal college work. We want to avoid the mistake, which we see made so often in the political world, of becoming wildly enthusiastic for municipal ownership of street railways just about the time they are becoming bankrupt and their private owners are glad to be rid of them, or just about the time cables are being replaced by trolleys, or trolleys by motor buses. The fact that so large a percentage of the engineering students of the Sheffield Scientific School have deserted the courses in civil, mechanical and electrical engineering for the new courses in industrial and administrative engineering, indicates that we may be on the verge of a revival of the humanities, and that after all that form of education which can tell us most about man, his origin and his destiny, and the control of his creative powers, will hold its own with all competitors in the concern of the coming generation.

PERTINENT PARAGRAPHS

President Frank L. McVey, of the University of Kentucky, in a letter regarding the Anti-Evolution Bill, recently introduced in the Kentucky Legislature, advises that it appears that the bill will not come up for final vote at this session, but adds that the so-called Fundamentalist Movement is gaining a good deal of headway and is likely to make itself felt as it attempts to limit the teaching of science in the public schools.

Is it not an interesting fact that thus far no American university has undertaken to give special training to college executives, administrators and professors? The records show that there are approximately four hundred and thirty to four hundred and forty colleges and universities in the country with denominational affiliations. This means that there ought to be